



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

order that the most essential features shall be presented. He is evidently a master of the whole science, and not an amateur content to explain the familiar portions and to overlook the difficult topics needful to make the sketch symmetrical. Wisdom is also shown in the classification and description of the minerals. The thoroughly scientific arrangement by chemical character, of use to the learned, is laid aside for the following practical scheme: First, the rock-forming minerals, such as are world-wide, and extend through the whole crust; second, the ores; third, the salts and useful minerals supplementary to the ores; and fourth, the gems and precious stones. Under the first head there is presented the important distinction of those that have been formed secondarily in contrast with those that were original. We think the author might wisely have devoted three or four pages, instead of a brief paragraph scarcely exceeding fifty words, to the hydro-carbons. No effort is made to describe the phenomena connected with refraction and polarization, nor to the microscopic structure, nor to petrography.

Notes and Examples in Mechanics. By IRVING P. CHURCH. New York, John Wiley & Sons, 1892.

THIS work, as stated in the preface, is "a companion volume to the writer's 'Mechanics of Engineering,' and contains various notes and many practical examples, both algebraic and numerical, serving to illustrate more fully the application of fundamental principles in mechanics of solids; together with a few paragraphs relating to the mechanics of materials, and an appendix on the 'Graphical Statics of Mechanism.' A knowledge of the elements of trigonometry and calculus is assumed.

The work is clear and practical. Many problems are first treated analytically, then by assuming numerical values for the several algebraic quantities. English units are used. Engineering data are drawn from well-known and reliable authorities.

Among the structures and machines discussed (after the necessary exposition of general principles) are the bell crank, simple

and compound cranes, wedge, roof truss, pendulum, weighted piston with steam, I-beam, box-beam, fly-wheel, locomotive, jack-screw, ore-crusher, etc.

The work is abundantly illustrated with cuts.

Light. By SIR H. TRUEMAN WOOD. London, Whittaker & Co., 1891.

THIS elementary Treatise belongs to Whittaker's "Library of Popular Science." The undulatory theory is presented in clear and non-mathematical language, and the various phenomena of common observation are explained on this theory.

In a very lucid and attractive style, the author discusses such topics as reflection, refraction, color, optical instruments, the chemical action of light (as in photography), polarization, and fluorescence. The cuts are abundant and well drawn.

The appendix contains an annotated list of elementary works on light, color, spectroscope, etc.

Chemical Calculations, with Explanatory Notes, Problems, and Answers. By R. LLOYD WHITELEY. London and New York, Longmans, Green & Co. 1892.

A WIDE range of topics is included in these hundred pages; as metric system, thermometric scales, density and specific gravity, percentage composition of compounds, calculation of empirical formulae, volume of gases, calculations depending on chemical equations, combination of gases by volume, calculation of the results of quantitative analysis, atomic weight determinations, gas analysis, absorption of gases by liquids, molecular weights, calorific power and calorific intensity.

The problems on molecular weights are not confined to vapor densities; but the more recent methods of freezing points (Raoult) and boiling points (Beckmann and Wiley) are duly explained.

The table of atomic weights is based upon O = 16, and agrees, for the most part, with Ostwald's "Outlines of General Chemistry;" thus H = 1.003, in accordance with the older determina-

Publications Received at Editor's Office.

DAY, DAVID T. Mineral Resources of the United States. Washington, Government. 8°. 678 p.
GARNER, R. L. The Speech of Monkeys. New York, Charles L. Webster & Co. 8°. 233 p.
JACKMAN, WILBUR S. Nature Study for the Common Schools. New York, Henry Holt & Co. 12°. 448 p.
MERRILL, GEORGE P. The Materials of the Earth's Crust. Washington, Government. 8°. Paper. 87 p.
SALTER, WILLIAM M. First Steps in Philosophy. Chicago, Charles H. Kerr & Co. 12°. 155 p. \$1.
U. S. DEPARTMENT OF AGRICULTURE. Insect Life. Washington, Government. 8°. Paper. 90 p.
"WATERDALE." Researches on the Dynamic Action and Ponderosity of Matter. London, Chapman & Hall. 12°. 309 p.
WATKINS, J. E. The Log of the Savannah. Washington, Government. 8°. Paper. 30 p.
WELLS, CHARLES R. Manual of the Natural Movement Method in Writing. Syracuse, C. W. Bardeen. Sm. 4°. Paper. 44 p. 25 cts.
WILLIAMS, SAMUEL G. The History of Modern Education. Syracuse, C. W. Bardeen. 12°. 408 p. \$1.50.

Reading Matter Notices.

Ripans Tabules: best liver tonic.
Ripans Tabules cure jaundice.

FOR SALE.

The Paleontological Collection of the late U. P. James, of Cincinnati, Ohio. Many type specimens and thousands of duplicates. For further information address

JOSEPH F. JAMES,
U. S. Department of Agriculture,
WASHINGTON, D. C.

Societas Entomologica.

International Entomological Society, Zurich-Hottingen, Switzerland.
Annual fee, ten francs.

The Journal of the Society appears twice a month, and consists entirely of original articles on entomology, with a department for advertisements. All members may use this department free of cost for advertisements relating to entomology.

The Society consists of about 450 members in all countries of the world.

The new volume began April 1, 1892. The numbers already issued will be sent to new members.

For information address Mr. FRITZ RUHL, President of the Societas Entomologica, Zurich-Hottingen, Switzerland.

INDEXES TO Volumes XVII. and XVIII OF

SCIENCE

are in preparation, and will be issued at an early date.

POPULAR MANUAL OF VISIBLE SPEECH AND VOCAL PHYSIOLOGY.

For use in Colleges and Normal Schools. Price 50 cents
Sent free by post by

N. D. C. HODGES, 874 Broadway, N. Y.

Wants.

A GRADUATE of the University of Pennsylvania and a practical mineralogist of twenty years' experience desires to give his services and a cabinet of 25,000 specimens, all named, with about the same number of duplicates, in minerals, crystals, rocks, gems, fossils, shells, archaeological and ethnological specimens and woods to any institution desiring a fine outfit for study. The owner will increase the cabinet to 50,000 specimens in two years and will act as curator. Correspondence solicited from any scientific institution. J. W. HORTTER, M.D., Ph.D., San Francisco, Cal., General P. O. Delivery.

WANTED.—A position as zoological artist in connection with a scientific expedition, institution or individual investigations. Experienced in microscopic and all scientific work. References given if desired. Address J. HENRY BLAKE, 7 Prentiss Place, N. Cambridge, Mass.

YOUNG MEN destined for a medical career may receive instruction in branches introductory thereto, at the same time, if desired, pursuing the so-called elementary medical studies. Advanced students can have clinical instruction, use of modern text books, etc. Will take one or two students into my family and office. Such must furnish unexceptionable references. Quizzing by mail. Address Dr. J. H. M., in care of 417 Adams Avenue, Scranton, Pa.

CHEMIST AND ENGINEER, graduate German Polytechnic, Organic and Analytical, desires a position in laboratory or chemical works. Address 213½ E. 7th Street, New York, care Levy.

A MAN, 36 years old, of extensive experience, having the degrees of A.M. and Ph.D., desires a first-class opening as a teacher of Zoology and kindred studies in a college or university. Can furnish numerous testimonials or references as to success and skill in most modern laboratory methods. Address E. W. D., Md. Agr. College, College Park, Md.

A YOUNG MAN, with a thorough training in Analytical Chemistry (including analysis of minerals, food, water, etc.), and holding a diploma of the School of Practical Science, of Toronto, and good testimonials, desires a position as Analytical Chemist or as assistant to such. Address to WM. LAWSON, 16 Washington Ave., Toronto, Ontario.

A JOHNS HOPKINS graduate (1892) desires a position as instructor in mathematics and physics. Address A. B. TURNER, Johns Hopkins University, Baltimore, Md.

tions of the ratio O : H. For many of the problems, however, the atomic weights are rounded to whole numbers, except Cl = 35.5.

The work is recommended as a well-planned text-book of the subjects indicated.

Mechanics for Beginners. Part I. Dynamics and Statics. By J. B. Lock. London and New York, Macmillan & Co., 1891.

THIS is a carefully-prepared elementary text-book, presenting the subject in the following order: rectilinear motion, motion in one plane, forces acting at a point, parallel forces, machines (including friction), uniform motion in a circle, energy, the pendulum. The definitions are clear and examples abundant. The demonstrations presuppose a knowledge of trigonometry.

English units are employed throughout. The following terms are convenient (in the absence of metric units), but not very familiar in this country: *velo*, the velocity of one foot per second; *celo*, the acceleration of one *velo* per second; *poundal*, a force producing one *celo* on one pound; and *foot-poundal*, the work done by one *poundal* acting one foot.

While this work shows marks of thoroughness, it seems a great pity to ignore the international system of weights and measures.

Elementary Lessons in Heat. By S. E. TILLMAN Revised Edition. New York, John Wiley & Sons, 1892.

THESE lessons, prepared as a short course for the U. S. Military Academy, present the most essential and practical aspects of the subject, in a clear and descriptive manner. The language of

trigonometry and differential calculus are scarcely introduced, even in discussing the conduction of heat. English units are employed, for the most part. The various kinds of thermometers and other instruments required by observers are explained; and the last two chapters are devoted to meteorology.

Forty-six numerical problems are added in this edition, illustrating thermometric scales, linear and cubic expansion, properties of gases, specific heat, latent heat, relative humidity, and mechanical equivalent of heat.

AMONG THE PUBLISHERS.

THE September number of *The Mother's Nursery Guide* contains medical articles on "Natural and Artificial Feeding of Infants," "A Short Talk about Disease Germs," "Some Common Nervous Diseases," etc. Other subjects are: "A Mother's Duty in Mental Child-Training," "Kindergarten-at-Home Stories," "A Child's Vocabulary," etc.

— All teachers and those interested in the education of young children will wish to read the article in *The Atlantic Monthly* for September by Horace E. Scudder, entitled "The Primer and Literature." This paper proves in a very logical, clear, and interesting manner that "the time has come when the . . . statement may be made that there should be no break in the continuity of literature in the schools; that from the day when the child begins to hold a book in his hands until the day when he leaves the public school he shall steadily and uninterruptedly be presented with genuine literature; that the primer itself shall serve as an introduction to literature." The paper will well repay careful reading and discussion.

Horsford's

ACID PHOSPHATE,

Recommended and prescribed
by physicians of all schools

FOR

DYSPEPSIA, NERVOUSNESS,
EXHAUSTION,

and all diseases arising from
imperfect digestion and de-
rangements of the nervous
system.

It aids digestion, and is a
brain and nerve food.

Descriptive pamphlet free.

Rumford Chemical Works, Providence, R. I.

Beware of Substitutes and Imitations.

PATENTS

For INVENTORS. 40-page BOOK FREE. Address
W. T. Fitzgerald, Attorney at Law, Washington, D. C.

LITERARY OUTFIT FREE.

Any one sending us \$1.00 at once and mentioning
"Science," will receive a copy of "Historical
Sketches and Events in the Colonization of Amer-
ica," by G. B. Hall. A square 8vo. book (6½x9
inches), 223 pages, illustrated. This is a regular
\$2.00 book and a bargain at that price. \$ 2 00

200 Private Library Labels; they should be
used by all who own books. 50

"The Library," a 100-page book containing a
brief list of most important standard and mis-
cellaneous books in every department of litera-
ture. Intended for those who are about forming
a library. Hints about what books to read
and how to buy them. 50

1 year's subscription to the "Literary Light,"
a monthly magazine of Ancient, Medieval and
Modern Literature. 1 00

\$4.00 actual value for \$1.00. Sample copy of "Lit-
erary Light," 10 cents (postal card won't do).

Address, *Literary Light*,
243 4th Ave. S., Minneapolis, Minn.

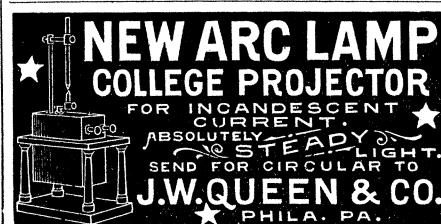
ESTERBROOK'S STEEL PENS.

OF SUPERIOR AND STANDARD QUALITY.

Leading Nos.: 048, 14, 130, 135, 239, 333

For Sale by all Stationers.

THE ESTERBROOK STEEL PEN CO.,
Works: Camden, N. J. 26 John St., New York.



THE WEEKLY BULLETIN OF NEWSPAPER AND PERIODICAL LITERATURE.

Catalogues and Classifies Each Week

THE PRINCIPAL CONTENTS OF THE PERIODICAL PRESS.

That huge mass of material heretofore inaccessible to the eager student is now rendered available. Special attention is invited to the Bulletin's

INDEX OF TECHNICAL LITERATURE

Send for a free sample copy and learn how

The Bulletin Supplies

The Articles Catalogued.

Address THE WEEKLY BULLETIN,
5 Somerset Street, - - Boston, Mass.

SCIENCE CLUBBING RATES.

10% DISCOUNT.

We will allow the above discount to any subscriber to *Science* who will send us an order for periodicals exceeding \$10, counting each at its full price.

N. D. C. HODGES, 874 Broadway, N. Y.

ADDRESS ON THE DEVELOPMENT OF THE

MEMORY

To introduce a series of valuable
educational works the above
will be sent to all applicants

Room JAMES P. DOWNS, PUBLISHER,
327. 243 BROADWAY, NEW YORK.

FREE

MINERALS Cabinet Specimens, Collections, and
mineralogists, collectors, colleges, schools, and chemists.
Send for 100-page catalogue, paper bound, 15 cents;
cloth bound, 25 cents; supplement, 2 cents. GEO. L.
ENGLISH & CO., Mineralogists, 738 & 735 B'way, N. Y.

QUERY.

Can any reader of *Science* cite a case of lightning stroke in which the dissipation of a small conductor (one-sixteenth of an inch in diameter, say,) has failed to protect between two horizontal planes passing through its upper and lower ends respectively? Plenty of cases have been found which show that when the conductor is dissipated the building is not injured to the extent explained (for many of these see volumes of *Philosophical Transactions* at the time when lightning was attracting the attention of the Royal Society), but not an exception is yet known, although this query has been published far and wide among electricians.

First inserted June 19, 1891. No response to date.

N. D. C. HODGES,
874 BROADWAY, NEW YORK.

THE RADIOMETER.

By DANIEL S. TROY.

This contains a discussion of the reasons for their action and of the phenomena presented in Crookes' tubes.

Price, postpaid, 50 cents.

N. D. C. HODGES, 874 Broadway, N. Y.

THE BOTANICAL GAZETTE.

A monthly illustrated journal of botany in all its departments.

25 cents a number, \$2.50 a year.

Address PUBLISHERS BOTANICAL GAZETTE,
BLOOMINGTON, IND.

JOHN IRELAND'S Bookstore, 1197 Broadway

near 29th St., is convenient to the residence quarter of the city; it is a good place to drop into on the way up or down town to select books or stationery. His stock is well selected and embraces all the new and standard books as soon as issued. Out-of-town purchasers can order by mail with every confidence that their wants will be as well supplied as if buying in person.

AUTHORS AND PUBLISHERS.

Material arranged and compiled for all kinds of works, excepting fiction. Statistics a specialty. Indexing and cataloguing. Address G. E. BIVER, 835 N. 16th Street, Philadelphia.

BACK NUMBERS and complete sets of leading Magazines. Rates low. AM. MAG. EXCHANGE, Schenectady, N. Y.

TO THE READERS OF SCIENCE.

PUBLISHER'S ANNOUNCEMENT.

Titles of Some Articles Published in <i>Science</i> since Jan. 1, 1892.	
Aboriginal North American Tea.	Baur, G., Clark University, Worcester, Mass.
Actinism.	Beal, W. J., Agricultural College, Mich.
Agriculture, Experimental, Status of.	Beals, A. H., Milledgeville, Ga.
Amenhotep, King, the tomb of.	Beauchamp, W. M., Baldwinsville, N.Y.
Anatomy, The Teaching of, to Advanced Medical Students.	Boss, Franz, Clark University, Worcester, Mass.
Anthropology, Current Notes on.	Bolley, H. L., Fargo, No. Dak.
Architectural Exhibition in Brooklyn.	Bordwick, Arthur E., Montclair, N.J.
Arsenical Poisoning from Domestic Fabrics.	Bradley, Milton, Springfield, Mass.
Artesian Wells in Iowa.	Brunton, D. G., Philadelphia, Pa.
Astronomical Notes.	Call, E., Elsworth, Des Moines, Ia.
Bacteria, Some Uses of.	Chandler, H., Buffalo, N.Y.
Botanical Laboratory, A.	Comstock, Theo. B., Tucson, Arizona.
Brain, A Few Characteristics of the Avian.	Conn, H. W., Middletown, Conn.
Bythoscopidae and Cereopidae.	Cragin, F. W., Colorado Springs, Col.
Canada, Royal Society of.	Davis, W. M., Harvard College, Cambridge, Mass.
Celts, The Question of the.	Dimmock, George, Canobie Lake, N.H.
Chalcotherium, The Ancestry of.	Farrington, E. H., Agricultural Station, Champaign, Ill.
Chemical Laboratory of the Case School of Applied Science.	Ferrree, Barr, New York City.
Children, Growth of.	Flexner, Simon, Johns Hopkins University, Baltimore, Md.
Collection of Objects Used in Worship.	Foshay, P. Max, Rochester, N.Y.
Cornel, The Change at.	Gallaudet, E. M., Kendall Green, Washington, D.C.
Deaf, Higher Education of the.	Garmann, S., Museum of Comp. Zool., Cambridge, Mass.
Diphtheria, Tox-Albumin.	Golden, Katherine E., Agricultural College, Lafayette, Ind.
Electrical Engineer, The Technical Education of.	Hale, Edwin M., Chicago, Ill.
Eskimo Throwing Sticks.	Hale, George S., Boston, Mass.
Etymology of two Iroquoian Compound Stems.	Hale, Horatio, Clinton, Ontario, Canada.
Eye-Habits.	Hall, T. Proctor, Clark University, Worcester, Mass.
Eyes, Relations of the Motor Muscles of, to Certain Facial Expressions.	Halsted, Byron D., Rutgers College, New Brunswick, N.J.
Family Traits, Persistency of.	Hale, Erasmus, Oskaloosa, Iowa.
Fishes, The Distribution of.	Hay, O. P., Irvington, Ind.
Fossils, Notice of New Gigantic.	Haynes, Henry W., Boston Mass.
Four-fold Space, Possibility of a Realization of.	Hazen, H. A., Weather Bureau, Washington, D.C.
Glacial Phenomena in Northeastern New York.	Hewitt, J. N. B., Bureau of Ethnology, Washington, D.C.
Grasses, Homoptera Injurious to.	Hicks, L. E., Lincoln, Neb.
Great Lakes, Origin of the Basins of.	Hill, E. J., Chicago, Ill.
“Healing, Divine.”	Hill, Geo. A., Naval Observatory, Washington, D.C.
Hemipterus Mouth, Structure of the.	Hitchcock, Romyn, Washington, D.C.
Hofmann, August Wilhelm von.	Holmes, E. L., Chicago, Ill.
Hypnotism among the Lower Animals.	Hotchkiss, J. D., Staunton, Va.
Hypnotism, Traumatic.	Howe, Jas. Lewis, Louisville, Ky.
Indian occupation of New York.	Hubbard, Gardner G., Washington, D.C.
Infant's Movements.	Jackson, Dugald C., Madison, Wisconsin
Influenza, Latest Details Concerning the Germs of.	James, Joseph F., Agricultural Dept., Washington, D.C.
Insects in Popular Dread in New Mexico.	Johnson, Roger B., Miami University, Oxford, O.
Inventions in Foreign Countries, How to Protect.	Kellerman, Mrs. W. A., Columbus, O.
Inventors and Manufacturers, the American Association of.	Kellcott, D. S., State University, Columbus, O.
Iowa Academy of Sciences.	Kellogg, D. S., Plattsburgh, N.Y.
Jargon, The Chinook.	Linton, J. A., Albany, N.Y.
Jassidae; Notes on Local.	Loeb, Morris, New York City.
Keller, Helen.	Maberry, Charles F., Cleveland, Ohio.
Klamath Nation, Linguistics.	Macloskie, G., Princeton, N.J.
Laboratory Training, Aims of.	McCarthy, Gerald, Agricultural Station, Raleigh, N.C.
Lewis H. Carvill, Work on the Glacial Phenomena.	MacDonald, Arthur, Washington, D.C.
Lightning, The New Method of Protecting Buildings from.	Marshall, D. T., Metuchen, N.J.
Lissajous's Curves, Simple Apparatus for the Production of.	Mason, O. T., Smithsonian Institution, Washington, D.C.
Maize Plant, Observations on the Growth and Chemical Composition of.	Millspaugh, Charles F., Morgantown, W. Va.
Maya Codices, a Key to the Mystery of.	Nichols, C. F., Boston, Mass.
Medicine, Preparation for the Study of.	Nuttall, George H. F., Johns Hopkins University, Baltimore, Md.
Mineral Discoveries, Some Recent, in the State of Washington.	Oliver, J. E., Cornell University, Ithaca, N.Y.
Museums, The Support of.	Osborn, Henry F., Columbia College, New York City.
Palenque Tablet, A Brief Study of.	Osborn, Herbert, Agricultural College, Ames, Iowa.
Patent Office Building, The.	Pammel, L. H., Agricultural Station, Ames, Iowa.
Physa Heterostropha Lay, Notes on the Fertility of.	Pillsbury, J. H., Smith College, Northampton, Mass.
Pocket Gopher, Attempted Extermination of.	Potetz, W. L., Wake Forest, N.C.
Polariscopes, Direct Reflecting.	Preble, Jr., W. P., New York City.
Psychological Laboratory in the University of Toronto.	Ruffner, W. H., Lexington, Va.
Psychological Training, The Need of.	Sanford, Edmund C., Clark University, Worcester, Mass.
Psylla, the Pear-Tree.	Schufeldt, R. W., Washington, D.C.
Rain-Making.	Scripture, E. W., Clark University, Worcester, Mass.
Rivers, Evolution of the Loup, in Nebraska.	Slade, D. D., Museum Comp. Zool., Cambridge, Mass.
Scientific Alliance, The.	Smith, John B., Rutgers College, New Brunswick, N.J.
Sistrurus and Crotalophorus.	Southwick, Edmund B., New York City.
Star Photography, Notes on.	Stevens, George T., New York City.
Star, The New, in Auriga.	Stevenson, S. Y., Philadelphia, Pa.
Storage of Storm-Waters on the Great Plains.	Stone, G. H., Colorado Springs, Col.
Teaching of Science.	Thomas, Cyrus, Washington, D.C.
Tiger, A New Sabre-Toothed, from Kansas.	Thurston, R. H., Cornell University, Ithaca, N.Y.
Timber Trees of West Virginia.	Todd, J. E., Tabor, Iowa.
Trachea of Insects, Structure of.	True, Frederick W., National Museum, Washington, D.C.
Vein-Formation, Valuable Experiments in.	Turner, C. H., University of Cincinnati, Cincinnati, O.
Weeds as Fertilizing Material.	Wake, C., Staniland, Chicago, Ill.
Wind-Storms and Trees.	Ward, F. DeC., Harvard University, Cambridge, Mass.
Wines, The Sophisticated French.	Ward, Stanley M., Scranton, Pa.
Zoology in the Public Schools of Washington, D. C.	Warder, Robert B., Howard University, Washington, D.C.
Some of the Contributors to <i>Science</i> Since Jan. 1, 1892.	
Aaron, Eugene M., Philadelphia, Pa.	
Allen, Harrison, Philadelphia, Pa.	
Baldwin, J. Mark, University of Toronto, Canada.	
Barnes, Charles Reid, Madison, Wis.	
West, Gerald M., Clark University, Worcester, Mass.	
Whitman, C. O., Clark University, Worcester, Mass.	
Williams, Edward H., Lehigh University, Bethlehem, Pa.	